

Course of the disease depends on:

1-General condition of the patient 2-Virulence of the organism 3-Proper line of treatment

So osteomyelitis Types are:

A) Acute osteomyelitis:

Routes of infection:

1-Hematogenic: from any septic focus 2-From outside: in compound fractures

3-Direct: from nearby infections like abscess or septic arthritis

Organism: 1-Staph aureus (80%) 2-Others: e.g. H. influenza, stapt

Predisposing factors:

General: malnutrition, chronic disease, ... Local: Trauma

Site: Most commonly in the metaphyseal because:

-More liable to trauma -Presence of sinusoids filled with blood

-It is the site of muscles & ligaments attachment so any strain → hematoma (stagnated blood) → Sepsis

Pathology:

1-Trauma → Hematoma → Organisms reach the stagnated blood → Pus formation

2-When suppuration occurs in the metaphysis, pus either:

- Get collected under the periosteum & elevate it → *subperiosteal abscess*
- Spread to the medulla → *Intramedullary (endosteal) abscess*

3-Collection of pus on the both sides → ↓ blood supply to the cortical bone → Necrotic bone

"Sequestrum"

*Sequestration is more easily in children as periosteum is loosely adherent allowing pus to be collected.

4-Elevation of the periosteum → Stimulation of the osteoblast → New bone formation *"Involucrum"*

*If infection reaches the joint → Pyogenic (septic) arthritis

•In adults and infants, the periosteum is thin and adherent so infections reach the joint easily while in children the periosteum is thick and loosely adherent that makes hard for the infection to reach the joint beside the presence of the epiphyseal plate that acts as a barrier.

•Infections can reach joint in children if the epiphysis is intracapsular or in case of intra-articular tendon e.g. Biceps, Popliteus

Complications:

1-Septic arthritis (more in infants and adults) 2-Pathological fracture

3-Chronicity 4-Pyemia

Diagnosis:

1-History of mild trauma

2-Manifestations:

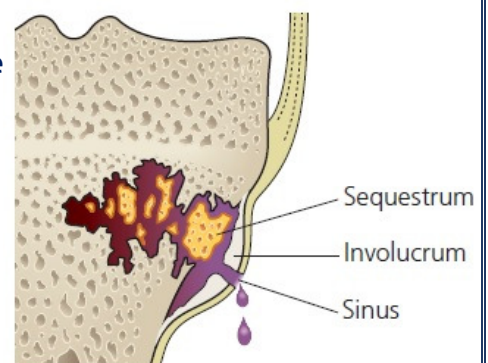
General (more in intramedullary): fever, malaise, ...

Local (more in subperiosteal): pain, hotness, tenderness, edema

3-Investigations:

a) Lab: CBC (leukocytosis), ↑ ESR, ↑ CRP

b) Imaging: X-ray → early: no signs,
late: ↓ cortical density + New bone formation



Differential diagnosis:

- 1-Rheumatic fever (polyarthritis + history of tonsillitis)
- 2-Septic arthritis (from the start) → complete limitation of the movement + Pain & tenderness
- 3-Cellulitis (no systemic manifestations)

Treatment: "Rest of patient + Rest of the part"

- 1-Rest of the part by splint/cast
- 2-Rest of the patient by
 - a-Analgesics
 - b-Systemic antibiotics (after culture & sensitivity)
 - c-Multiple Drilling and drainage of the pus

B) Subacute Osteomyelitis:

- Patient has history of trauma, pain or tenderness
- The diagnosis is proved radiologically (round or oval radiolucent cavity)
- DD: (Biopsy + culture → +ve for staph.)
 - Cystic tuberculosis
 - Osteoid osteoma
 - Ewing's sarcoma
- Treatment: Immobilization + Antibiotics

C) Chronic Osteomyelitis:

Patient has: 1- Sequestrum 2- Involucrum 3-Bony cavities 4- Discharging sinuses

Lines of treatment:

- 1-Cortical deroofing
- 2-Saucerization: excavation of the necrotic tissue
- 3-Sequestrectomy: Complete separation of the sequestrum to avoid reformation
- 4-Ensure complete formation of involucrum (or use bone grafts) to avoid pathological fractures

Septic Arthritis:

**Occurs more in Intra-capsular metaphysis e.g. prox. femur, humerus

Pathology:

- 1-Stage of synovitis with a purulent joint effusion
- 2-Stage of arthritis: in which articular cartilage is eroded and destroyed

Fate: With healing there may be:

- 1- Complete resolution and a return to normal
- 2- Partial loss of articular cartilage and fibrosis of the joint
- 3- Loss of articular cartilage and bony ankylosis (DD from fibrous ankylosis that occurs in T.B.)
- 4- Bone destruction and permanent deformity of the joint

Diagnosis:

- 1-Lab: ↑WBCs, ESR - Diagnostic aspiration
 - 2-Imaging: X-ray/US → Widening of joint space
- **Patient has a characteristic "night cry" that indicates stage of arthritis

Complications:

- 1-Chronicity
- 2-Subluxation and dislocation of the joints
- 3-Retarded growth, partial or complete destruction of the epiphysis, deformity of the joint

Treatment:

- 1-Therapeutic aspiration
- 2-Arthrotomy

